**Grade 7 Equations Test: Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Criterion A: Knowledge and Understanding**

**Maximum 8**

|  |  |
| --- | --- |
| **Level of Achievement** | **Descriptor** |
| **0** | You failed to submit work and cannot be assessed. |
| **1-2** | You showed **little or no** understanding of the topics covered and had little in the way of success with most of the questions. |
| **2** | You showed **minimal** understanding of the topics covered and you were able to solve a few simple, familiar problems. |
| **3-4** | You showed a **partial** understanding of the topics covered and had a limited amount of success with the more familiar questions. |
| **5-6** | You showed a **good** understanding of the topics covered and were successful with most of the more familiar questions. |
| **7-8** | You showed an **excellent** understanding of the topics covered, were successful with all the familiar questions, and were very successful with those which were unfamiliar. (level 6) |

**Level 1 – 2**

1. **State the inverse of each of the following operations:**

a) x 3 \_\_\_\_\_\_\_\_ b) + 4 \_\_\_\_\_\_\_\_

c) -  \_\_\_\_\_\_\_\_ d) ÷ 11 \_\_\_\_\_\_\_\_

sides

both,

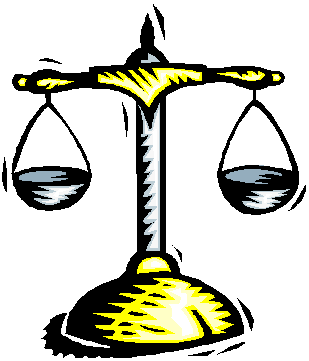
multiply,

add

1. **Fill in the gaps using the words in the box:**

The balance of an equation will be maintained if we:

* 1. \_\_\_\_\_\_\_\_\_\_\_ the same amount to both sides.
  2. Subtract the same amount from \_\_\_\_\_\_\_\_\_\_\_ sides.



* 1. \_\_\_\_\_\_\_\_\_\_\_\_\_ both sides by the same amount.
  2. Divide both \_\_\_\_\_\_\_\_\_\_ by the same amount.

1. **Complete the flow charts by filling in the empty boxes.**

12

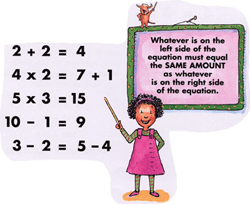
4

a) -1 x 8 b) ÷ 4 -5

c) x 5 -10 d) + 9 ÷ 2

10

15



**Level 3-4**

1. **One of the numbers in the brackets is the correct solution to the given equation. Find the correct solution by using trial and error. (Show working)**

a) 2x + 5 = 7, { 0, 1, 2} b) , { 3, 6, 9}

1. **Solve these equations using inverse operations.**

a) y – 7 = 4 b) 

c) a + 8 = -5 d) 3z = 21

e) 5x = -15 f) 

1. **Solve these equations using inverse operations.**

a) -8x = -24 b) –a = 100

c)  d) 

1. **Solve the following two step equations:**

a) 2x + 1 = 7 b) 13x – 6 = 20

c) 3x + 4 = -14 d) 5x - 4 = -69

e)  e) 

1. **Find the unknown number using equations:**
2. A number (n) plus 6 is equal to 11. Find n.
3. A number (n) is doubled and the result is -18. Find n

**Level 5-6**

1. Solve the following equations (remember solutions can be fractions)

a) 2a + 3 = 0

b) 

c) 

d) 

2. I think of a number, treble it and subtract 7. The result is 10. Find the number.

1. Write an equation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Solve the equation from **a.** by showing all work.

3.

5x 2

7

1. Write an equation for the Perimeter of the above triangle in simplest form.

P=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. If the perimeter is 29 cm. Find the length of the unknown side by solving the equation above. Show your work.

# Level 7-8

1.a)  b) 

c)  d) 2(a+6) = 7 – 2a

e) 

2. I am thinking of two numbers. One of them is 11 more than the other, and their sum is 131. What are the numbers?

1. Write an equation\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Solve the equation from a). Show all your work.

3. ()cm

7cm

1. Write an equation in simplest form for the perimeter of the rectangle in terms of x.

P=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. If the perimeter is equal to 112cm. Find the length of the rectangle. Show by solving the equation that you found in a).
2. A piece of wood is 16 m long and it is cut into three pieces. Each piece is 1 m longer than each previous piece.
   1. Write an equation to assist you
   2. Solve the equation to find the length of the 3 pieces of wood.